

REMARKS/ARGUMENTS

A Power of Attorney to this firm, customer number 23117, was filed on September 19, 2008. Kindly direct all further commutations to the undersigned.

Reconsideration of this application and entry of this amendment are solicited. Claims 1 – 31 remain active in the application subsequent to entry of this amendment.

Amendments to Claim 1

Claim 1 has been amended to specify that the milling fluid is a low volatility fluid selected from glycols and non aqueous, non-hydrocarbon fluids that are both solvent and water miscible, other than alcohols or esters. Thus, alcohols and esters are excluded from the scope of claim 1, while glycols are explicitly included. Alcohols, glycols and esters are mentioned in the list of possible milling fluids set out at page 6, lines 1 to 3 of the description, and therefore this amendment has clear basis in the application as filed.

Contrary to the Examiner's assertion in the Office Action dated 28 September 2007, Applicant respectfully considers that one skilled in the art would recognize that alcohols and glycols are patentably distinct. This is especially clear from the fact that alcohols and glycols are listed and discussed separately at page 6, line 2 and elsewhere in the present application. Thus, claim 1 is not inconsistent with claims 13 and 14, because claim 1 does include glycols.

Rejection under 35 USC §103

Claims 1, 4 to 9, 17 to 20 and 23 to 31 in view of Wheeler

Present claim 1 describes a process comprising milling a metal powder in a milling fluid. According to the present invention, the milling fluid must be a low volatility fluid selected from glycols and non-aqueous, non-hydrocarbon fluids that are both solvent and water miscible, other than alcohols or esters. The milling of the metal powder results in a composition comprising metal flakes, which is used as a pigment composition.

Wheeler describes a process wherein an “organic binder”, “organic liquid vehicle” and metal pigment are mixed to form a paste. The metal pigment is already in powder or flake form (*see*, e.g. claim 1), and the components are not milled together. Rather, the paste is made by mixing a “first component” comprising the organic binder with a “second component” comprising the metal pigment, wherein the first and/or second component may comprise the organic liquid vehicle. Wheeler describes in claim 9 and at column 2, lines 19 to 28 that the

second component comprising the metal pigment can be a powder obtained by milling in an “organic liquid” such as mineral spirits, but this is a separate stage from the step of mixing the paste.

The polyalkylene glycol derivatives referred to by the Examiner are described at column 5, lines 1 to 6 of Wheeler as examples of the organic binder material. Thus these materials are suggested as part of the “first component”, which is mixed with metal powder or flakes, and not suggested for use in a milling step. There is no teaching or suggestion in Wheeler that any fluid used in the milling step used to produce the metal powder or flakes should be a low volatility fluid that is non-aqueous, non-hydrocarbon and both solvent and water miscible; column 2, lines 19 to 23 of Wheeler suggests only mineral spirits.

The present invention is concerned with providing a “universal” pigment composition which can be employed in both solvent and water based coatings (*see* page 3, lines 29 to 31). In contrast, Wheeler is concerned with low/non-dusting metal pigment compositions which are substantially completely non-volatile, and so is focused on the nature of the binder that is mixed with the metal pigment in order to provide these properties to the composition. There is thus nothing in Wheeler which would teach or suggest that the problem of providing a “universal” pigment composition could be solved by changing the nature of the fluid used for milling the metal powder into flakes, still less by selecting a milling fluid that is non-aqueous, non-hydrocarbon and both solvent and water miscible, as required by present claim 1. The subject matter of present claim 1 is therefore not obvious with regard to Wheeler.

Since claims 4 to 9, 17 to 20 and 23 to 31 all depend from or otherwise include all of the subject matter of claim 1, the subject matter of these claims is accordingly also not obvious in view of Wheeler; *see* MPEP §2143.03.

Claim 13 in view of Wheeler, Gross and Verhoff

As established above, Wheeler is not a suitable starting point for the skilled person trying to achieve the objectives of the present invention, because Wheeler does not describe milling metal flakes in a fluid that is both water and solvent miscible. As described above, Wheeler discloses only use of mineral spirits as a milling fluid, with no suggestion that there is any problem with this or that any other type of milling fluid should be used (because Wheeler is not concerned with the milling step but rather with the components used in the final composition).

It is respectfully submitted that the skilled person would not even consider Gross when addressing the problem of mechanical milling of metal powder to form metal flakes (e.g. by ball milling), because Gross is concerned with chemically milling large-scale pieces of metal using a caustic solution, for example comprising an alkali metal hydroxide. Thus the fact that ethylene glycol can be added to an aqueous solution of a caustic substance to aid chemical milling has absolutely no relevance to suitable milling fluids for mechanical milling of metal powder into metal flakes. Furthermore, Gross discloses use of milling solutions which are aqueous. Aqueous milling fluid solutions are of course specifically excluded from present claim 1. Thus even if Gross were to be considered, it would not be obvious to omit water and mill in a fluid such as ethylene glycol alone.

It would further not be obvious to combine the teaching of Wheeler and Gross with that of Verhoff. In this regard, it is noted that Verhoff is concerned with milling any solid substrate, for example drugs, talc and chalk, and not exclusively with metals. One seeking to modify the metal milling process mentioned in Wheeler would not consider Verhoff, because Verhoff does not suggest any suitable milling fluids for metals in particular, nor suggest that metals in particular could be milled in a non-aqueous fluid. Still less does Verhoff teach that when milling metals the skilled person could use a specific subset of fluids which are low volatility fluids selected from glycols and non-aqueous, non-hydrocarbon fluids that are both solvent and water miscible, as required by present claim 1.

Thus none of the cited documents is relevant to the present invention, and the subject matter of claim 13 would not be obvious starting from these documents either alone or in combination, for at least the reasons given above.

Claim 14 in view of Wheeler, Gross, Verhoff and Garrett

It is noted that four references have been asserted as the basis of the Examiner's obviousness rejection. As the courts have stated, the fact that it is necessary to cite such a large number of references is, in and of itself, indicative of non-obviousness. *Minneapolis-Honeywell Regulator Company v. Midwestern Instruments, Inc.*, 298 F.2d 36, 38, 131 U.S.P.Q. 402, 403 (7th Cir. 1961); *The Ric-Wil Company v. E.B. Kaiser Company*, 179 F.2d 401, 404, 84 U.S.P.Q. 121, 124 (7th Cir. 1950); *Reynolds et al v. Whitin Machine Works*, 167 F.2d 78, 83, 76 U.S.P.Q.

551, 555 (4th Cir. 1948); and *Racal-Vadic, Inc. v. Universal Data Systems*, 1980 U.S. Dist LEXIS 15864, *81, 207 U.S.P.Q. 902, 927 (N.D. Ala. 1980).

It would further not be obvious to combine the cited references, and even if the skilled person were to combine the teaching of the cited documents, he would not arrive at the present invention.

As described above for claim 13, Wheeler, Gross and Verhoff cannot be combined to arrive at the subject matter of the present invention. Further, it would not be obvious that the teaching of Garrett would apply to present invention. Garrett is concerned with electrophotographic printing methods, and teaches that ethylene glycol and dipropylene glycol may be used as fluidizing materials for milling zinc oxide. In Garrett the described composition relies on the photoconductive properties of zinc oxide, so that it is suitable for electrophotographic printing. The present invention is not concerned with metal oxides, but rather with milling metals, in order to provide a metal flake pigment composition that it is useful in both solvent and water based coatings. The metal flake pigment compositions of the present invention are metallic in appearance. Indeed, pigmentary properties may be destroyed by formation of the metal oxide (*see* page 2, lines 16 to 18). It would therefore be more likely that the skilled person would not consider the teaching of Garrett, especially since Garrett does not teach or suggest in any way that methods of milling zinc oxide could be applied to metallic pigment compositions.

Thus, the skilled person would not arrive at the subject matter of claim 14 by considering the teaching of Wheeler, Gross, Verhoff or Garrett, either alone or in combination, for at least the reasons given above.

Claims 3 to 4, 8, 10 to 12 and 21 to 22 in view of Wheeler, Knox and Verhoff

As explained above, Wheeler teaches the use only of mineral spirits as a suitable milling fluid for ball milling metal powder. Thus the differences between the teaching of Wheeler and present claim 3 are two-fold: (1) the selection of a milling fluid which is a low volatility fluid selected from glycols and non-aqueous, non-hydrocarbon fluids that are both solvent and water miscible, other than alcohols or esters, and (2) the addition of a corrosion inhibitor. As discussed above, the first of these differences is not obvious. Thus claim 3 is at least not obvious by virtue of its dependency on claim 1.

Furthermore, the skilled person would not arrive at the use of a corrosion inhibitor by combining the teaching of Knox and Verhoff with that of Wheeler. As recognized by the Examiner, Knox discloses the use of a corrosion inhibitor in a milling fluid composition comprising water. The presence of water, which can corrode metals such as aluminum, is the reason a corrosion inhibitor is required. In contrast, Wheeler teaches use of mineral spirits as a milling fluid. Mineral spirits would not be corrosive, and there would be no motivation starting from Wheeler to seek the use of a corrosion inhibitor, still less to look to the teaching of a document concerned with an aqueous milling fluid, such as Knox.

The skilled person would not learn from Verhoff that the milling fluid could be non-aqueous, but still incorporate a corrosion inhibitor. In particular, Verhoff is not necessarily concerned with metals, but also with other solids not prone to corrosion, such as drugs, talc and chalk. Verhoff is therefore not in the same field of art as the present invention, namely that of milling metals to make metal pigment compositions. There would therefore be no reason to combine the teaching of Verhoff with the other documents. As explained above, even if the skilled person were to consider Verhoff, he would not arrive at the present invention.

The Examiner has noted that Knox also teaches the features of claims 4, 8, 10 to 12 and 21 to 22. The subject matter of all of these claims is however not obvious in view of their dependency on claim 1 as described above. Further, it would not be obvious to combine the teaching of Knox with that of Wheeler and Verhoff, as explained with regard to claim 3 above. Also, since Knox describes milling in aqueous solution, it would not be obvious that this teaching would apply equally to the present system, which must be non-aqueous.

Claim 2 in view of Wheeler, Gross and Verhoff

The reasons why the subject matter of the present invention would not have been obvious to the skilled person in view of Wheeler, Gross and Verhoff are fully discussed with regard to claim 13 above. This argumentation applies equally to the subject matter of claim 2.

Furthermore, none of the documents, either alone or in combination, teach or suggest the use of a milling fluid which consists of an alcohol or an ester, i.e. to the exclusion of other components.

Claim 2 in view of Knox and Verhoff

Knox describes milling in a fluid comprising water. This document does not teach or suggest that the water should be replaced with a milling fluid consisting of an alcohol or an ester.

As described above, the skilled person would not look to the teaching of Verhoff to learn about other suitable milling fluids for milling metals to make pigment compositions, because Verhoff is concerned with a broad range of solid substances, which may have properties and requirements very different from the specific requirements of metal pigments. Verhoff does not teach or suggest in any way that a non-aqueous milling fluid should be used when milling the specific subset of metals. It would be illogical to combine a teaching that a milling fluid may be non-aqueous with a teaching that a milling fluid must comprise water (as in Knox). Still less does either Knox or Verhoff suggest that such a non-aqueous milling fluid should consist of an alcohol or an ester.

The subject matter of claim 2 is therefore not obvious in view of the teaching of Knox and Verhoff.

Claims 15 and 16 in view of Knox, Verhoff and Sommer

The subject matter of claims 15 and 16 would not be obvious in view of Knox and Verhoff for the same reasons as provided for claim 2 above. Further, the teaching of Sommer would not assist the skilled person, because alcohols and esters are suggested merely as a solvent for the crushing aid and/or binding agent that are essential components of the dispersions described therein. There is no teaching or suggestion that other components could be excluded such that a milling fluid consisting of an alcohol or ester should be used.

Conclusion

For at least the reasons provided above, the subject matter of the present invention is not obvious from any of the documents cited by the Examiner, either alone or in combination, and reconsideration is respectfully requested.

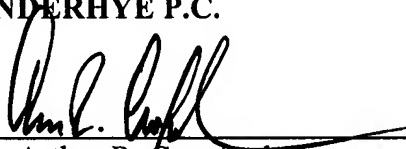
WHEELER
Appl. No. 10/551,774
October 1, 2008

Should the examiner require any further information please contact the undersigned

Respectfully submitted,

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